UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,139	11/05/2003	Timothy J. Moulsley	PHB 34,266D	7819

24737 7590 02/24/2005

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
TORRES, JOSEPH D	

ART UNIT	PAPER NUMBER
2133	

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/702,139	MOULSLEY, TIMOTHY J.	
	Examiner	Art Unit	
	Joseph D. Torres	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/348,958.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. In view of the amendment filed 12/09/2004, all objections to the drawings are withdrawn.

Claim Rejections - 35 USC § 112

2. In view of the amendment filed 12/09/2004, previous 35 USC § 112 rejections to the claims are withdrawn.

Response to Arguments

3. Applicant's arguments with respect to claims 11-26 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 11, 12, 14-17 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over 3GPP document (3rd Generation Partnership Project (3GPP);Technical Specification Group (TSG) Radio Access Network (RAN); Working Group 1 (WG1); Multiplexing and channel coding (FDD), TS 25.212 V1.0.0 (1999-04)) in view of Okumura et al. (Okumura, Y.; Adachi, F.; Variable rate transmission and blind rate detection for coherent DS-CDMA mobile radio, Electronics Letters, Volume: 33, Issue: 24, 20 Nov. 1997, Pages: 2026 - 2027) [hereafter referred to as Okumura].

35 U.S.C. 103(a) rejection of claims 11 and 24.

3GPP document teaches a coding circuit configured to generate a coded output from a digital input (see Channel coding device in Figure 4-1 on page 9 of the 3GPP document); an interleaving circuit configured to generate a plurality of interleaved words from said coded output (see 1st interleaving device in Figure 4-1 on page 9 of the 3GPP document); and a rate matching circuit for adjusting the number of bits in a data block comprising said plurality of interleaved words, the coded output having a greater number of bits than the digital input, the rate matching circuit having means for adjusting the number of bits in the data block using a rate matching pattern to provide data bits for transmission during respective frames of a transmission channel (see Rate matching device in Figure 4-1 on page 9 of the 3GPP document), and means for selecting the

rate matching pattern depending on an associated bit deletion or repetition pattern (see Rate matching section on page 19 of the 3GPP document) that is selected to ensure that deleted or repeated bits of the data block are not required to enable all bits from the digital input to be reconstructed (the Rate matching section on page 19 of the 3GPP document emphasizes quality of transmission requirements, which can only be achieved by ensuring none of the required bits for error correction coding are lost, that is by ensuring sufficient bits to reconstruct the original data exist at the decoder). However the 3GPP document does not explicitly teach the specific use of a transmitter and receiver.

Okumura, in an analogous art, teaches teaches a plurality of interleaved words generated by the action of an interleaving circuit on a coded output generated by the action of a coding circuit on a digital input (the *VRD transmission and blind rate detection scheme* section of Column 2 on page 2026 of Okumura teaches a sequence is convolutionally coded and then bit interleaved using a $2N_{slot}xK$ interleaver; Note: the rows in the $2N_{slot}xK$ interleaver are words), the coded output having a greater number of bits than the digital input (convolutional codes inherently have a greater number of bits than the digital input since the convolutional code includes redundant bits), the rate matching circuit having means for adjusting the number of bits in the data block using a rate matching pattern to provide data bits for transmission during respective frames of a transmission channel (the first line in column 1 on page 2027 of Okumura teaches that the Repetition coder in Figures 1-3 in Okumura is a rate matching circuit having means for adjusting the number of bits in the data block using a rate matching pattern to

provide data bits for transmission during respective frames of a transmission channel), and means for selecting the rate matching pattern depending on a bit deletion or repetition rate, wherein a bit deletion or repetition pattern is selected to ensure that the deleted or repeated bits are not required to enable all bits from the digital input to be reconstructed (the Repetition coder in Figure 1 in Okumura is a means for selecting the rate matching pattern depending on a repetition rate, wherein a repetition pattern is selected to ensure that the repeated bits are not required to enable all bits from the digital input to be reconstructed; Note: the repetition bits are inserted for the purposes of rate matching and not for error correction so that the repeated bits are not necessarily required to enable all bits from the digital input to be reconstructed).

Note: Figure 1 on page 2026 of Okumura comprises a transmitter for use in a communication system, the transmitter comprising a digital input, a convolutional coding device for generating data bits for transmission, and means for transmitting the data bits during respective frames of a transmission channel, wherein the coding device comprises a coding circuit for generating a coded output having a greater number of bits than the digital input, an interleaving circuit for operating on the coded output to generate a data block comprising a plurality of interleaved words (the *VRD transmission and blind rate detection scheme* section of Column 2 on page 2026 of Okumura teaches a sequence is convolutionally coded and then bit interleaved using a $2N_{slot}xK$ interleaver; Note: the rows in the $2N_{slot}xK$ interleaver are words).

Note also: Note: Figure 1 on page 2026 of Okumura comprises receiver for use in a communication system, the receiver comprising means for receiving a coded digital

signal comprising a received convolutionally coded and interleaved data block comprising a plurality of interleaved words, the data block having been processed by a coding device to adjust the number of bits in the data block according to a rate matching pattern, the receiver further comprising a data reconstruction circuit having means for adjusting the number of bits in the data block to reverse the action of the coding device, thereby reconstructing the interleaved words (see Repetition Decoder in Figure 1 on page 2026 of Okumura), a de-interleaving circuit having means for generating each of the plurality of interleaved words, a channel decoder, and means for selecting the rate matching pattern as a function of a bit deletion/repetition rate (see De-interleaver & Viterbi Decoder in Figure 1 on page 2026 of Okumura).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the 3GPP document with the teachings of Okumura by including use of a transmitter and receiver. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of a transmitter and receiver would have provided the opportunity to implement the 3GPP protocol in a communication system for which it was designed.

35 U.S.C. 103(a) rejection of claim 12.

The Rate Matching device in Figure 4-1 on page 9 of the 3GPP document is performed on the data block received from the 1st interleaver.

35 U.S.C. 102(b) rejection of claim 14.

Figure 2 of Okumura teaches that the frame structure is determined by the slot length of the interleaver.

35 U.S.C. 102(b) rejection of claim 15.

Note: the data rate of a convolutional coder is a function of the constraint length of the convolutional coder, and the final rate of the transmitter of Figure 1 on page 2026 of Okumura is a function of the data rate of a convolutional coder; hence is also a function of the constraint length of the convolutional coder.

35 U.S.C. 102(b) rejection of claims 16 and 17.

See Figure 4-1 on page 9 of the 3GPP document.

35 U.S.C. 102(a) rejection of claim 19.

The convolutional encoder on page 12 in the 3GPP document encompasses fixed rate encoders.

35 U.S.C. 102(b) rejection of claims 20-22.

The Interelaver in the 3GPP document is not adaptive and any interleaver inherently has a constant bit rate.

35 U.S.C. 102(a) rejection of claim 23.

See Rate matching section on page 19 of the 3GPP document.

5. Claims 13, 18, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over 3GPP document (3rd Generation Partnership Project (3GPP);Technical Specification Group (TSG) Radio Access Network (RAN); Working Group 1 (WG1); Multiplexing and channel coding (FDD), TS 25.212 V1.0.0 (1999-04)) and Okumura et al. (Okumura, Y.; Adachi, F.; Variable rate transmission and blind rate detection for coherent DS-CDMA mobile radio, Electronics Letters, Volume: 33, Issue: 24, 20 Nov. 1997, Pages: 2026 - 2027) [hereafter referred to as Okumura] in view of Yi; Byung Kwan (US 5978365 A).

35 U.S.C. 103(a) rejection of claims 13, 18, 25 and 26.

The 3GPP document and Okumura substantially teaches the claimed invention described in claim 1 (as rejected above).

However the 3GPP document and Okumura do not explicitly teach the specific use of a puncturing matrix.

YI, in an analogous art, teaches use of a puncturing matrix (see Figure 15 in Yi).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the 3GPP document and Okumura with the teachings of Yi by including use of a puncturing matrix. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of

ordinary skill in the art would have recognized that use of a puncturing matrix would have provided the opportunity to puncture data for a rate-matching scheme.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 11-24 are rejected under the judicially created doctrine of double patenting over claims 1-19 of U. S. Patent No. US 6671851 B1 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent. The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: Claim 1 of U. S. Patent No. US 6671851 B1 recites "A rate matching circuit for adjusting the number of bits in a data block, the data block comprising a plurality of interleaved words generated by the action of an interleaving circuit on a coded output generated by the action of a coding circuit on a digital input, the coded output having a greater number of bits than the digital input, the rate

matching circuit having means for adjusting the number of bits in the data block using a rate matching pattern to provide data bits for transmission during respective frames of a transmission channel, and means for selecting the rate matching pattern as a function of an interleaving depth, a bit deletion/repetition rate and said digital input, wherein a bit deletion/repetition pattern is selected to ensure that the deleted or repeated bits are not required to enable all bits from the digital input to be reconstructed.".

Claim 1 of the current application adds the language, "selecting the rate matching pattern **depending on a bit deletion/repetition rate**" [only the highlighted language is added]. Since a rate matching pattern inherently depends bit deletion/repetition rate, the added language does not further limit claim 1, hence claim 1 of the current application is an inherently obvious subset of the limitations in claim 1 of U. S. Patent No. US 6671851 B1.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

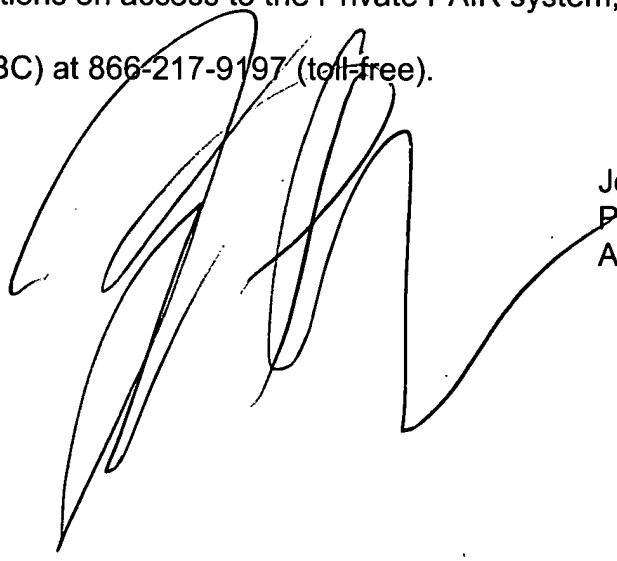
Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph D. Torres, PhD
Primary Examiner
Art Unit 2133